ATTACHMENT 3

Scope of Work for a Remedial Investigation/Feasibility Study Workplan at the Boeing Commercial Airplanes, Fabrication Division – Auburn Plant

Revised as of May 30, 2002

For the portion(s) of the facility containing SWMUs and AOCs identified in Attachment 2, column I., the RI workplan shall describe procedures for evaluating:

(A) the vertical and horizontal hydraulic conductivity, particle size distribution, porosity and organic carbon content of lithologic units down to and including the first laterally continuous aquitard beneath the Boeing Auburn Plant, based on existing subsurface conditions and data gathered during remedial investigation (RI) activities.

(B) the seasonal groundwater flow direction and gradient of all potentially impacted groundwater units;

(C) a qualitative description of potential human and environmental receptors and potential pathways to each receptor from each SWMU and AOC or group of SWMUs and AOCs, as appropriate. Based on this information, Ecology may, at a later time, request further quantitative evaluation of the migration of contaminants to potential receptors. Any further quantitative evaluation may include evaluation of contaminant migration rates, groundwater monitoring systems, and directions and impacts on potential receptors.

(D) the lithologic description of stratigraphic units. All soil borings logged shall be classified using the Unified Soil Classification (USC) system. Soil measurements shall include as appropriate: bulk density, porosity, total organic matter content, particle size distribution, and moisture content;

(E) the lateral continuity of all stratigraphic units encountered in the areas investigated;

(F) the potential hydraulic connection between hydrogeologic units with surface water bodies, downgradient wells, and human or environmental receptors;

(G) the current distribution of dangerous constituents released at or from SWMUs and AOCs in the subsurface soils, groundwater, surface water, and sediments; and the estimated rate and direction of future migration of such dangerous constituents. To facilitate this assessment for groundwater, Boeing will conduct an assessment of the horizontal and vertical coverage provided by existing wells at or near the Boeing Company's property boundaries and provide for the installation of wells in areas and at depths that are determined to be inadequately covered. For the purposes of evaluation, Ecology may require that current and/or historical sampling results be depicted as contaminant isopleth drawings for dangerous constituents detected in groundwater.

(H) the chemical and physical properties of the soil, sediment, groundwater, surface water and released dangerous constituents which may assist in determining mobility and degradation of the dangerous constituents.

Additionally, for the portion(s) of the Facility containing the SWMUs and AOCs identified in Attachment 2, the RI workplan shall describe procedures for obtaining the following for Ecology:

(I) hydrogeologic cross sections;

(J) seasonal water level contour maps obtained from groundwater wells, where the location, number, and construction of groundwater monitoring wells shall be sufficient to characterize the extent and nature of any groundwater contamination;

(K) documentation of well construction materials, design, installation, and development methods. Groundwater monitoring well systems shall be designed, sampled, constructed, maintained, and abandoned in general accordance with Chapter 173-160 WAC and the *RCRA Groundwater Monitoring: Draft Technical Guidance Document*, Office of Solid Waste, U.S. EPA, November, 1992;

(L) consistent site-wide groundwater flow maps based on an accurately closed survey of all wells included in the groundwater monitoring plan and any additional wells as necessary to have complete coverage of the Boeing Auburn Plant. This survey must be corrected or re-surveyed to account for changes in elevations resulting from the Nisqually Earthquake. Construct groundwater flow maps using measurements taken from a consistent measuring point on each well casing.

(M) a list and map of the location, including water extraction rates, depths and length of well screens for all active local wells withdrawing water within a 1.0 mile radius of the BCAG - Auburn Plant, and their potential effect, if any, on hydraulic gradients;

(N) data from the chemical analysis of potentially impacted media (e.g., soil, groundwater, sediment, and surface water) samples for dangerous constituents and their major breakdown products likely to be present based on The Boeing Company's knowledge of past and present chemical usage associated with a SWMU and AOC or group of SWMUs and AOCs. Groundwater samples for chemical analysis shall be collected on at least a quarterly basis, unless otherwise approved by Ecology. Soil samples for chemical analysis will be obtained at appropriate intervals as designated in the RI Workplan, utilizing criteria approved by Ecology;

(O) a time schedule for the completion of RI milestones;

(P) a list of analytical methods, detection limits, practical quantitation limits, and chemical parameters to be analyzed. Prepare quality assurance/quality control procedures (QA/QC) and submit them to Ecology-NWRO for review and approval in a QA Project Plan. Prepare the QA Project Plan in accordance with *Guidelines for Preparing Quality Assurance Project Plans for Environmental Studies* by Stewart

Lombard and Cliff Kirchmer, Environmental Assessment Program, February 2001, Publication No. 01-03-003 (see reference in Attachment 5);

(Q) a sampling and analysis plan in accordance with WAC 173-340-820 and 830 and The Guidance on Sampling and Data Analysis Methods, January 1995, Department of Ecology; and

(R) an engineering drawing of the storm water collection system for the BCAG – Auburn Plant which includes at a minimum the location of all oil water separators, storm drains, drain piping, and outfall locations.

(S) groundwater level elevation contour maps to cover the southern extent of the Boeing Auburn Plant.

(T) provisions in the Health and Safety Plan to protect the water supply of the City of Pacific municipal supply wells.